

Coating material curable thermally and with actinic radiation, and its use

Patent claims

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1. A coating material curable thermally and with actinic radiation, comprising

(a1) at least one constituent containing

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(a11) at least two functional groups which serve for crosslinking with actinic radiation, and

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(a12) at least one functional group which is able to undergo thermal crosslinking reactions with the hydroxyl and/or thiol groups (a21) in the constituent (a2),

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and

(a2) at least one branched, cyclic and/or acyclic C₉-C₁₆ alkane functionalized with at least two hydroxyl or thiol groups or with at least one hydroxyl and at least one thiol group (a21).

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2. The coating material as claimed in claim 1, characterized in that it additionally comprises one or more of the components

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(a3) at least one photoinitiator,

(a4) at least one thermal crosslinking initiator,

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(a5) at least one reactive diluent curable thermally and/or with actinic radiation,

(a6) at least one coatings additive,

(a7) at least one thermally curable constituent,
and/or

(a8) at least one organic solvent.

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3. The coating material as claimed in claim 1 or 2,
characterized in that said functional groups (a11)
comprise olefinically unsaturated groups and/or
epoxide groups, especially olefinically
10 unsaturated groups, and said functional groups
(a12) comprise isocyanate groups.
4. The coating material as claimed in one of claims 1
to 3, characterized in that said constituent (a1)
15 comprises a urethane (meth)acrylate and/or
polyester (meth)acrylate.
5. The coating material as claimed in any of claims 1
to 4, characterized in that the functionalized
20 alkane (a2) is liquid at room temperature.
6. The coating material as claimed in any of claims 1
to 5, characterized in that the functionalized
alkane (a2) has a boiling point of over 200°C.
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7. The coating material as claimed in any of claims 1
to 6, characterized in that the functionalized
alkane (a2) is acyclic.
- 30 8. The coating material as claimed in any of claims 1
to 7, characterized in that the functionalized
alkane (a2) contains primary and/or secondary,
especially primary and secondary, hydroxyl and/or
thiol groups.
- 35 9. The coating material as claimed in any of claims 1
to 8, characterized in that the functionalized
alkane (a2) is a polyol (a2).

10. The coating material as claimed in claim 9, characterized in that the polyols (a2) are diols and/or triols (a2).
- 5 11. The coating material as claimed in claim 10, characterized in that the polyols (a2) are positionally isomeric dialkyloctanediols, especially diethyloctanediols.
- 10 12. The coating material as claimed in claim 11, characterized in that the polyol (a2) consists of or comprises 2,4-diethyl-1,5-octanediol.
- 15 13. The use of the coating material as claimed in any of claims 1 to 12 in automotive OEM finishing, automotive refinish, the coating of plastics, the coating of furniture, and industrial coating, including coil coatings and container coatings, for the production of clearcoats and of multicoat
20 color and/or effect coating systems.
- 25 14. The use of the coating material as claimed in any of claims 1 to 12 for producing a clearcoat or a multicoat color and/or effect coating system, where at least one clearcoat film of a coating material as claimed in any of claims 1 to 12 curable thermally and with actinic radiation is applied to the surface of the primed or unprimed substrate or wet-on-wet to the surface of a
30 basecoat film and is cured together, where appropriate, with the basecoat film.

Abstract

COATING MATERIAL THAT CAN BE CURED THERMALLY OR BY
ACTINIC RADIATION, AND ITS USE

5 The invention relates to a coating material that
can be cured thermally or by actinic radiation and that
contains at least one component (a1) with at least two
functional groups (a11) which serve for cross-linking,
by actinic radiation, and at least one functional group
10 (a12) that can enter into thermal cross-linking
reactions with the hydroxyl and/or thiol groups (a21)
in component (a2), at least one branched cyclic and/or
acyclic C₉-C₁₆ alkane (a2)) that is functionalized with
at least two hydroxyl or thiol groups (a21) or with at
15 least one hydroxyl and at least one thiol group, and
optionally at least one photo initiator (a3), at least
one initiator of the thermal cross-linking reaction
(a4), at least one reactive diluent that is cured by
actinic radiation and/or thermally, at least one
20 lacquer additive (a6), at least one thermally curable
component (a7) and/or at least one organic solvent
(a8). The inventive coating material is used to produce
transparent lacquers and multi-layer chromophor and/or
effect lacquer.

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